
Green economy in the conditions of modern challenges: conceptual frameworks

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Abstract: Ensuring the sustainable development of economic systems requires the introduction of organizational and managerial and environmentally friendly technologies and innovative business models aimed at reducing the negative impact on the environment. This is in line with the concept of "green growth" proposed by the Organization for Economic Co-operation and Development. As international experience shows, increasing the level of environmental safety of the national economy can be achieved through the implementation of conceptually new management tools based on integrated (combination of system, process, situational, functional) approaches to concept sustainable development. **The purpose of the paper** is to clarify the essence and content of the term "green economy" on the basis of generalization and systematization of existing conceptual approaches to the definition of this concept. **Methodology.** The methodological basis of the study is the scientific works of foreign and Ukrainian scientists on the problems of green economy, circular economy, and environmental management. The research was conducted using general scientific methods: analysis and synthesis – to summarize the existing conceptual approaches and provisions, scientific developments on the development of the green economy and greening of logistics systems, clarification of the terminology; classifications – to systematize theoretical approaches to the definition of "green economy", which are proposed by various scientific schools; structural and logical generalization – to clarify the essence and content of the term "green economy". **Results.** The evolution and preconditions of formation and challenges of the development of a green economy are investigated. The existing scientific approaches to the definition of "green economy" are analysed and generalized. **Practical implications.** The key goal of the transition to a green economy is to change the paradigm of logistics, rethink the value chain and develop new business models that must meet modern requirements and challenges in the global world. The practical significance of the results of the study lies in the possibility of developing recommendations for "green" transformation of logistics systems in a circular economy and regional strategies for industrial waste management in economic regions of Ukraine, taking into account their specifics. **Value/originality.** The author's approach to the formulation of the category "green economy" is theoretically substantiated.

Keywords: Green economy, logistics system, green transformation, sustainable development, integrated approach.

1. Introduction

The instability of the world's development trends, the turbulence of the global economy, and the imbalance of economic, social, and environmental trends, which is intensifying, necessitate the creation of fundamentally new models of the economy. This

formation should take place within the paradigm of sustainable development, which has become central to humanity in the XXI century. In the global world, there are often differences in scientific views on the category of "Sustainable Development".

Many academics, educators, and entrepreneurs view sustainability in the context of economic growth based on GDP growth. For the world community,

sustainability is first and foremost a harmonious and balanced development of three processes: economic, social, and environmental. Without taking into account social and environmental factors, it is impossible to achieve sustainable economic development in the long run.

In the context of sustainable development, new economic models taking into account environmental factors have become widespread, both in theory and in practice: the Green Economy [1-8], the Green Growth Economy, and the Low-Carbon Economy, Circular Economy [9-11], Bioeconomy, Blue Economy, etc. New "hybrid" forms of economic development are emerging, such as the Circular Bioeconomy.

The United Nations Sustainable Development Goals (SDGs), adopted by the world community as goals for humanity and all countries for 2016-2030, have become a "successor" to the United Nations Millennium Development Goals (2000-2015), deepening them. The SDGs implement the principles of sustainability established by the UN Conference in Rio de Janeiro in 2012. This document is in line with international law, taking into account national characteristics, opportunities, and priorities. The goals of sustainable development should also facilitate the transition to a new model of the economy, namely the green economy. The SDGs system is quite balanced, and it has achieved a certain balance between economic, social, and environmental goals.

In view of this, **the purpose of this paper** is to study the evolutionary development and genesis of the concept of green economy, generalization, and systematization of existing scientific views to formulate this category.

2. Evolutionary development and genesis of the concept of green economy

2.1. Sustainable Development and Green Economy

The foundations for the formation of the concept of a green economy were laid within the concept of sustainable development in the late 80s of the XX century. There are many definitions of sustainable development, but the most common and generally accepted is the interpretation proposed in 1987 by the UN Commission under the leadership of G.H. Brundtland [12]: "Sustainable development is the development that meets the needs of the present generation without compromising the vital needs of future generations".

In 1992, at the UN Conference in Rio de Janeiro, the international community at the highest level adopted the "Agenda for the XXI Century", which defines a global partnership for sustainable development. Sustainable development includes three dimensions: economic, social, and environmental. Sustainable development can only be achieved by

meeting the sustainability requirements for each of these measurements.

Today it is becoming increasingly clear that the main concept of the future in the XXI century. There is sustainable development. The main provisions of this concept are reflected in the following UN strategic documents:

"The future we want" (2012) defines the prospects of humanity in the XXI century. Based on the concept of sustainable development, which should be based on the green economy;

The 2030 Agenda for Sustainable Development (2015) includes the UN Sustainable Development Goals for 2015-2030;

The Paris Climate Agreement (2015) sets out priorities for tackling the climate threat in the world and in all countries until 2030-2050, which is important for the transition to sustainable development.

These UN Commission documents successfully combine both conceptual priorities and specific goals and objectives facing countries. The documents contain quantitative indicators and a set of measures, the implementation of which allows the respective governments to plan their actions aimed at implementing the developed management decisions. Thus, in general, we can talk about the consensus reached in the world on development in the XXI century, which is associated with the transition to sustainable development.

Development based on environmental degradation and depletion of natural resources cannot be sustainable in the long run. In this regard, the world is looking for a qualitatively new model of the economy taking into account environmental factors: a green economy, an economy based on green growth, a low-carbon economy, a circular economy, a bioeconomy, a blue economy, and more. To some extent, these new economic models will be considered different types of a green economy. The formation and development of new economic models have become a priority of research and development and practical activities of private business in many countries. Thus, the European Community has adopted programs for the development of a green, circular, bioeconomy for 2030-2050. The Paris Climate Agreement aims to move to a low-carbon economy in most countries. In the non-financial, social, and environmental reporting of enterprises, the importance of achieving sustainable development goals has become increasingly important. The new vision of the economy is particularly clear in the concept papers of various international organizations.

2.2. Genesis of the "green economy" category

UN in the economic basis of its concept for the XXI century. laid the green economy as the basis for sustainable development. The Organization for Economic Co-operation and Development (OECD), which unites the developed countries of the world, makes extensive use of the term "green growth" in its

documents. This economic category is identified with the UN green economy, but it details the economic aspects of green growth, including support for investment, innovation, and competition.

The concept of "low-carbon economy" is widely used in the world, especially in the context of combating global climate change and reducing greenhouse gas emissions. In particular, this definition became one of the main ones at the UN climate conference in Paris (2015) to characterize the new economy and its future models. In developed countries, there are radical transformational transformations and structural and technological changes aimed at reducing the consumption of traditional hydrocarbons. At the same time, the share of renewable energy sources, supported by various economic instruments, such as taxes, loans, subsidies, etc., is sharply increasing.

According to the United Nations Environment Program (UNEP), a green economy "enhances human well-being and ensures social justice while significantly reducing risks to the environment and its degradation" [13]. As emphasized in the UN Concept Paper "The Future We Want", the concept of a green economy does not replace the concept of sustainable development. However, the fact that achieving sustainable development largely depends on the formation of a "correct" economy is now increasingly recognized. In this sense, the green economy is the basis of sustainable development, and it is based on its principles. According to UN documents, important features of such an economic model are [13]: efficient use of natural resources; preservation and increase of natural capital; pollution reduction; reduction of carbon emissions; prevention of loss of ecosystem services and biodiversity; income growth and employment.

2.3. Principles of green economy development

At the same time, based on the generalization of international research [14] on this issue, key principles for the effective development of the green economy have been established. Among them are the green economy:

- is a means to achieve sustainable development [15];
- is a resource- and energy-efficient economy;
- it is equality, justice between countries and generations;
- does not violate environmental restrictions;
- applies an integrated approach to decision making;
- assesses progress not only through GDP but also through indicators and assessments that take into account sustainable development [16];
- protects biodiversity and ecosystems;
- should promote the creation of "green" jobs and decent working conditions;
- reduces poverty, ensures the well-being of the population, social protection, and access to basic services;

improves public administration and strives for the rule of law;

internalizes externalities (external effects).

It is important to note once again that the principles of the green economy do not replace the concept of sustainable development. To the above features of the green economy, emphasized by international organizations, scientists in the monograph [17] added other fundamental aspects that, in their opinion, should be inherent in the new model: maximum structural and territorial coverage; social orientation; increasing the value of natural resources; resistance to knowledge; reduction of development risks, including environmental ones; innovation; energy efficiency / low carbon; a new approach to measuring progress.

3. Methodological principles of green economy development

3.1. Conceptual approaches to defining the essence and meaning of the term "green economy"

In the scientific literature, the term "green economy" first appeared in the work of British researchers D. Pearce, A. Markandya, E. Barbier [18] "Plan for a green economy", which justified the need for economic support for environmental policy. This scientific work is a program text for supporters of this discipline, which focuses on the economics of sustainable development. These ideas were developed in 1991 and 1994 when issues such as climate change, ozone depletion, massive tropical deforestation, and resource depletion in the world were already raised. However, until the mid-2000s, insufficient attention was paid to the development of this concept.

In 2008, as part of the UN Green Economy Initiative (GEI), one of the nine joint crisis initiatives, there has been an intensive increase in the number of definitions. In addition, a number of other terms have become common, such as "green growth" or "greening the economy".

These economic categories are used as interconnected and interchangeable in the context of a growing range of sectors of the economy, such as energy or water management, transport mobility or consumption, as well as the polluter pays principle or life cycle analysis.

The most authoritative and widely used definition of the green economy is formulated by UNEP (2011): it is an economy that provides long-term well-being and reduces inequality while allowing future generations to avoid significant risks to the environment and its impoverishment. This document emphasizes the relationship between the terms "green economy" and "sustainable development".

The concept of a green economy does not replace the concept of sustainable development. But nowadays there is a growing recognition that achieving

sustainable development depends almost entirely on the formation of a "correct" economy.

For decades, when new wealth has been created using the brown economy model, society has not solved problems such as social marginalization and resource depletion. That is why we are still far from achieving the Millennium Development Goals. Sustainable development remains a major long-term goal, but achieving it requires making the economy green (UNEP, 2011).

The "green" economy, considered in the context of poverty reduction and sustainable development, was one of the key topics of the Rio 2012 Conference. The concept of green growth emphasizes the importance of integrating environmental and economic policies in a way that identifies new potential sources of economic growth without creating an "unsustainable" burden on the quantity and quality of natural resources (OECD, 2011).

The transition to a green economy requires a set of measures that include economic instruments (taxes, subsidies, and emissions trading schemes), measures of state regulation (setting standards), and non-economic measures (voluntary initiatives and information provision).

A green economy can also be seen as a system of principles, goals, and measures. The importance of resource efficiency is a consequence of the principle of sustainable and efficient use of resources, consumption, and production.

In this regard, the European Environment Agency (EEA) report "The European Environment: State and Prospects" (2010) argues that the transition to a green economy depends on two equally important tasks: supporting structures and functions of ecosystems (the ability of ecosystems to recover) and the development of approaches that reduce the use of resources in production and consumption, as well as reduce the environmental impact (resource efficiency).

In a specific sense, resource efficiency means providing the desired increase in production with lower costs of human, natural, and financial resources. This is necessary, but not necessarily a sufficient condition for the transition to a "green" economy, because even with increased resource efficiency, the absolute volume of their consumption may increase (OECD, 2011).

Compared to the green economy, estimating the level of resource efficiency is less difficult (UNEP, 2010). In particular, at the macroeconomic level, indicators such as gross domestic product (GDP) per unit of resources used can be used, which reflects the relationship between resource consumption and output. However, differences in interpretations persist. It should be noted that there is currently no clear definition of a common interpretation of the concept of "resource efficiency" (EEA, 2011).

In general, the green economy is often seen as a new economic model that helps to address pressing global issues that have taken the form of a new crisis. The concept of a green economy in one form or another

has already been adopted by many developed countries, and measures to achieve it are seen as a means of combating the global recession [19].

3.2. Author's interpretation of the concept of "green economy"

Based on the theoretical analysis of scientific publications, information materials, and reports of international organizations and as a result of own research, the author's approach to the formulation of the term "green economy" is given, which consists in considering this concept from the standpoint of sustainable development, green transformation. That is, the green economy means:

the basis of the concept of sustainable development;

the modern concept of balanced sustainable development of logistics systems;

tool for the green transformation of logistics systems;

model of economic development, which is based on the implementation of "green" solutions in various areas of economic activity to preserve the environment, increase environmental security;

resource-efficient business model, the implementation of which will help increase the welfare of the population and reduce environmental risks.

3.3. Identifying the strengths and weaknesses of the green economy concept based on SWOT analysis

A critical analysis based on research [20-22] shows that the concept of a green economy has both advantages and disadvantages. Thus, the strengths of the concept can be considered, first, the possible positive effect in the form of increasing incomes, creating additional jobs, protecting the environment, and ensuring a high level of sustainable development of the world economy.

Secondly, according to the available estimates of experts [23], the amount of investment required for the transition to a green economy on a global scale is about 2% of the world GDP per year. This volume is greater than the actual value. Thus, for an effective public policy, these funds for the development of the green economy can be allocated at the national and global levels [24].

It is important to note that only the elimination of subsidies in areas that contribute to the survival of natural capital (energy, water supply, fisheries, and agriculture) can free up 1-2% of world GDP per year. At the same time, in the long run, investing 2% of world GDP in the "green" development scenario is able to compensate for economic losses with high returns [25]. The introduction of additional environmental standards is also able to give businesses a competitive advantage in the long run, which will initially incur additional costs for firms [26].

Third, there is already a steady positive growth dynamics of the green sector in Europe, accompanied by the emergence of positive environmental, economic and social externalities. For example, investments in the transport sector have yielded high returns in all three areas in Austria, Switzerland, the Czech Republic, Germany, etc. [27].

Despite the significant advantages, the green economy has a number of disadvantages. The main "failures" of the concept include, first, the limited practical application of the premise that considers the world as a single region. Many conclusions and recommendations on the implementation of the principles of the green economy are universal, global in nature, and does not take into account the diversity of states, their interests, goals, and objectives.

Second, although some estimates suggest the possibility of global investment in the "green" transformation of the global economy, some researchers question the often-voiced figure of 2% of world GDP, which in itself is quite significant. Costs may be underestimated and benefits overestimated [28].

In general, in the long run, investments in the green economy can provide significant financial benefits [29], although the possibility of slowing growth in some parts of the world due to insufficient elaboration of relevant mechanisms is not ruled out [20].

There are still difficulties in obtaining a positive economic result from compliance with environmental regulation because in one form or another there is always a choice between economic and environmental benefits. This includes such a business problem as the mismatch of consumer demands and their real actions. Yes, consumers are interested in environmentally responsible products and declare their willingness to buy them, but in practice, this is not always the case, which puts companies in a difficult position [26].

In addition, some researchers [30] disagree with the tools proposed for change. In particular, the subsidization of electricity generation in renewable energy companies has been criticized: some results indicate a redistribution of income (transfer to the consumer) from this type of support, worsening the financial situation of most companies in the industry.

4. Conclusions

Global climate change, limited availability or scarcity of many natural resources for economic activities, and their irrational use over time have led to the need to restructure economic models. That is, modern economic conditions require accelerating the transition to a fundamentally new model.

Today, this model of economic development, called the green economy, has been recognized and supported in many countries around the world through political decisions, plans, and practical actions. The transition to such a model will have not only

environmental but also economic and social benefits through the creation of new jobs, cost savings, and environmental damage, resource efficiency, prevention of environmental pollution. This became the basis of the concept of sustainable development.

Thus, at present, it is necessary to look for innovative tools and introduce fundamentally new approaches to the formation and development of ecosystems. The green economy is one of the priority mechanisms as one of the key mechanisms for developing and implementing business strategies at the present stage. For the effective development of this concept it is advisable:

- clear definition of a strategic approach to promoting the concept of a "green" economy;
- developing a clear and generally accepted interpretation of the concept of a "green" economy;
- clarification of institutional, legal, financial, organizational, and economic aspects;
- evaluation based on clearly defined priorities;
- formation of a coordinated system for the exchange of environmental information.

In further research it is planned to conduct a theoretical relationship between the concepts of "green economy" and "sustainable development"; to analyze and summarize the international experience of "green" transformation of logistics systems in a circular economy.

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